

Claims

1. A human machine interface system for controlling a device comprising:
 - a housing;
 - a human digit activatable physical element;
 - 5 a processor in communication with the element, the processor to receive and process an input from the element;
 - a communicator to communicate an output from the processor wherein the output comprises a command intended for the device;
 - 10 wherein the element, the processor and the communicator are all disposed about or within the housing or connected thereto.
2. A system according to claim 1 wherein the element, the processor and the communicator are all disposed about or within the housing.
3. A computer implemented method of controlling a device comprising:
 - receiving an input originating from a human digit activatable element;
 - 15 processing the input to determine an output comprising a command for the device; and
 - communicating the output to the device;
 - wherein the processing step comprises:
 - identifying one or more sub-inputs from the input;
 - determining a separate value for each sub-input;
 - 20 mathematically processing each sub-input to determine an output value; and
 - identifying an output command from said output value.
4. A method according to claim 3 wherein the separate value for each sub-input is determined from a table.
5. A method according to claim 3 wherein the output command is determined from a table.
- 25 6. A method according to claim 3 wherein the mathematical processing for n sub-inputs is according to the formula:
$$\text{Sub-input } 1 + \dots + \text{sub-input } n = \text{output value}$$

7. A method according to claim 3 comprising the steps of:
- processing a chronologically first sub-input to determine a subset of outputs;
- processing at least one chronologically subsequent sub-input to determine an output value.
8. A method according to claim 7 wherein the chronologically subsequent sub-input
- 5 comprises the absence of activation of a human digit activatable physical element over a predetermined time period.
9. A method according to claim 8 comprising the steps of:
- recording a time of first sub-input;
- monitoring an elapsed time after the first sub-input until it reaches a predetermined elapsed
- 10 time value;
- if no subsequent sub-input is received before the predetermined elapsed time value,
- processing the absence of subsequent input as a predetermined output value.
10. A method according to claim 9 wherein the predetermined elapsed time value is less than
- about 2 seconds, optionally less than about 1.5 seconds, optionally less than about 1
- 15 second, optionally about 0.5 to 1 second, optionally about 0.5 seconds.
11. A method according to claim 7 wherein the first processing step determines a selection of
- electronic device to control and the second processing step determines a command for that
- device.
12. A human machine interface apparatus comprising a base and a protuberance extending
- 20 therefrom, the protuberance being movable about an axis defined by the base and movable
- in directions defined by at least one guide to connect a plurality of control points within the
- guided path, the control points intended for correspondence with one or more control
- instructions for a controlled device.
13. A human machine interface apparatus comprising a base and one or more guides disposed
- 25 about the periphery of the base so as to guide a human digit, the base comprising a
- conductive element to enable a human digit to cause an input by slidably engaging the
- surface of the base with a digit, the input being useable to send an instruction to a
- controlled device.
14. A human machine interface apparatus comprising a plurality of activatable elements
- 30 disposed in close side by side contact with one another, such that on depression of a

predefined one or more elements, an input is generated corresponding to an instruction for a controllable device.

15. A human machine interface system comprising a human machine interface wirelessly connected to a device controller, the device controller comprising a wireless transceiver and a passive movement sensor physically connected to a processor wherein upon detection of movement, the device controller is switched into an active state.
16. A system according to claim 15 comprising a timer, wherein the device controller is automatically switched into an inactive state once a predetermined amount of time without movement has elapsed.
17. A system according to claim 15 comprising a timer, wherein the device controller is switched into an inactive state via a wireless command from the HMI controller once a predetermined amount of time without movement has elapsed.
18. A system according to claim 15 comprising a microcontroller wherein the movement sensor is electronically connected between the microcontroller's interrupt line and ground.
19. A system according to claim 15 comprising a mechanical movement sensor which optionally comprises one or more spherical conducting items able to roll within a housing and thereby open or close an electrical connection with movement.
20. A computer implemented method of reducing power consumption in a human machine interface system comprising a wireless device comprising:
- receiving data input from a chronological device;
- on receiving data consistent with a predetermined chronological period having elapsed, sending an instruction to a wireless chipset to reduce the active listening rate of the wireless device to a predetermined level;
- receiving data input from a movement sensing device consistent with an occurrence of movement;
- sending an instruction to a wireless chipset to increase the active listening rate to a predetermined level.